

Decentralized Approaches to Wastewater Treatment



U.S. Environmental Protection Agency
Office of Wastewater Management

Decentralized System

“An onsite or cluster wastewater system that is used to treat and dispose of relatively small volumes of wastewater, generally from individual or groups of dwellings and businesses”

Decentralized Treatment is Important Nationally

- **25% of population served**
- **33% of new construction**
- **Small communities: 11% of need**
- **> 50% in suburbs or cities**

Water Quality Problems on a National Scale

- **10-30% of systems failing annually**
- **Over 50% of systems >30 yrs. old**
- **Not meeting Clean Water Act goals**



Water Quality Problems on a National Scale

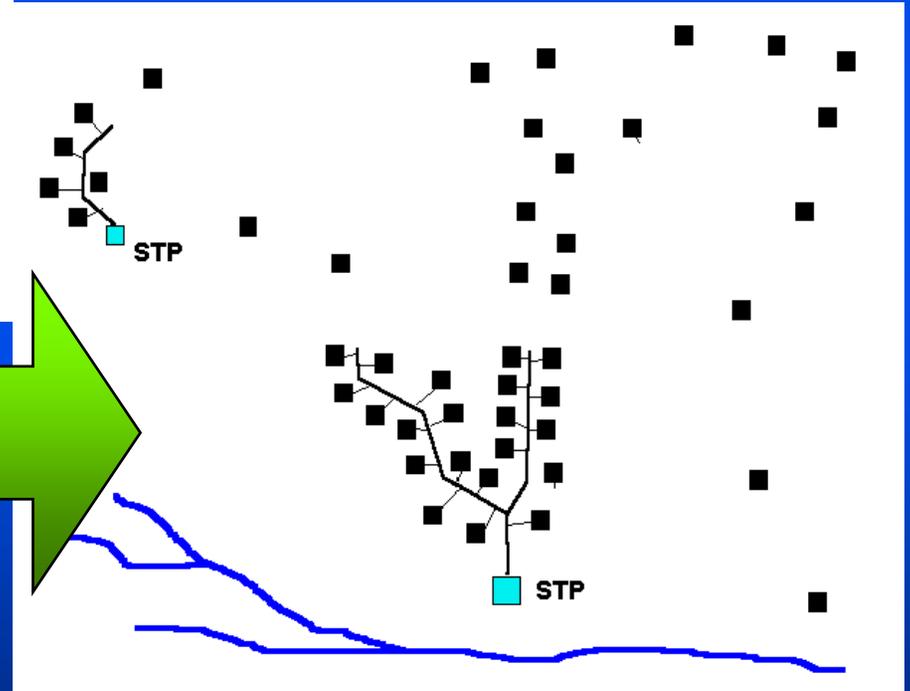
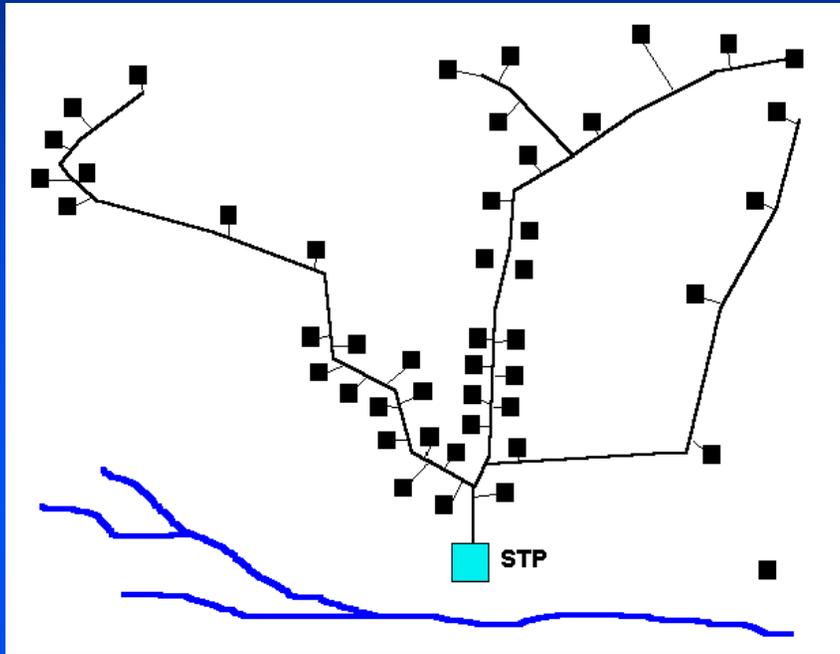
- **Factor in beach impairment (36%)**
- **Shellfish bed closures (32%)**
- **168,000 viral, 34,000 bacterial illnesses per year (gw sources)**
- **5,281 pathogen, 4,773 nutrient-impaired water bodies**

New Opportunities

- **New technologies**
- **Appropriate, cost effective**
- **More flexibility for planning growth**

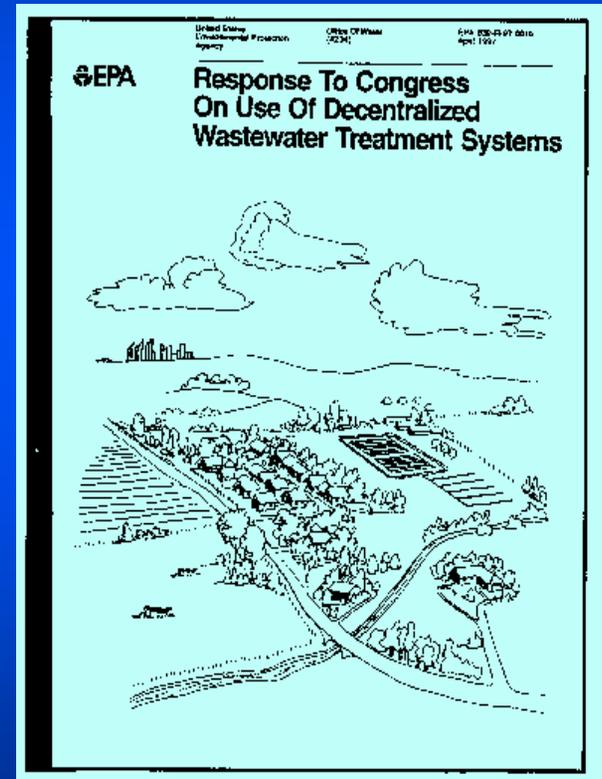


Decentralized Approach



Request for Report on Decentralized Systems

- Concern about Gap Between Needs and SRF Funding
- Need Alternatives to Costly Centralized Treatment and Collection



Report Conclusion:

“Adequately managed decentralized wastewater systems are a cost-effective and long-term option for meeting public health and water quality goals.”

BARRIERS

- Lack of Knowledge, Misperception
- Legislative/Regulatory Constraints
- **Lack of Management**
- Liability, Engineering Practices
- Financial Constraints

National Guidelines for Management

- Draft published October, 2000
- Gives EPA's recommendations
- Institutionalizes the concept
- Goals for management programs
- Voluntary

What is a Management Program?

- **Public awareness and acceptance**
- **Water quality protection requirements**
- **Siting, sizing, design and installation**

What is a Management Program?

- **Operation and maintenance**
- **Residuals management**
- **Monitoring and reporting**
- **Enforcement (if needed)**

National Guidelines for Management

- 5 “Model Programs”
- Cover new and existing systems
- Surface and subsurface discharge
- Do not supersede existing laws

Program 1: System Inventory/ Maintenance Awareness



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- Conventional septic systems
- Database of system locations
- Proper siting, installation
- Record, reminder of maintenance

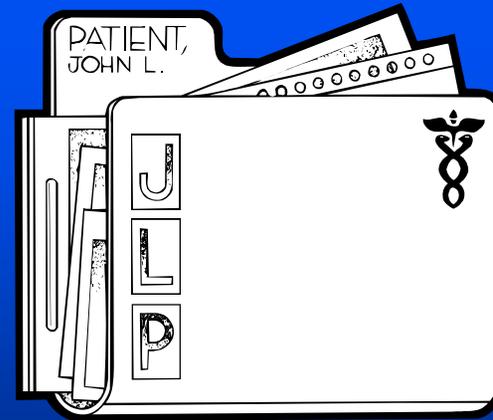
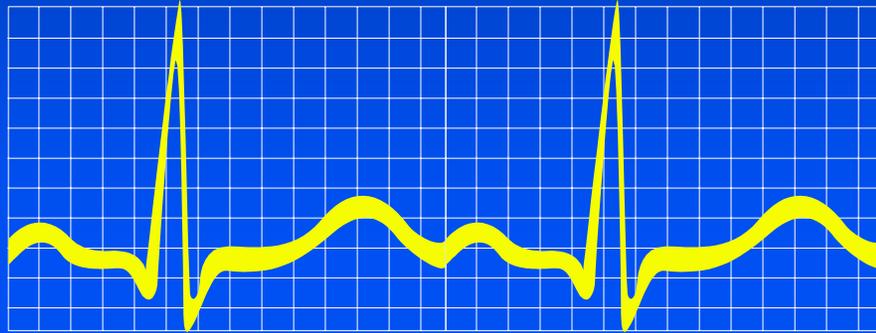
Program 2: Management through Maintenance Contract



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- Enables more complex options
- Homeowner contracts with service provider
- Routine maintenance assured

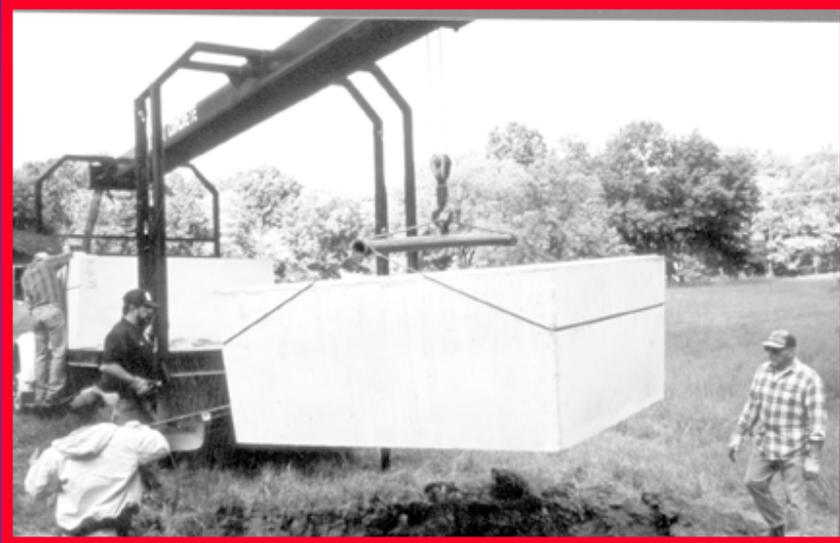
Program 3: Management through Operating Permits



Program 3: Management through Operating Permits

- Performance requirements requiring engineered designs
- Renewable operating permits
- Regular reporting, monitoring
- Homeowner responsible

Program 4: Utility Operation and Maintenance



Program 4: Utility Operation and Maintenance

- “Utility” management entity
- Responsible for O&M, permit
- Routine inspections
- Consistent performance
- Private ownership retained

Program 5: Utility Ownership and Management



Program 5: Utility Ownership and Management

- Professional management of all functions
- Consistent with other utility services (gas, electric, phone...)
- Enables area-wide planning

Guidance and Resources

- Guidance Manual
 - Case studies, examples
 - Sample ordinances
- Design Manual
 - Fact sheets on technologies
 - Management discussion

EPA Web Site

<http://www.epa.gov/owm/decent/index.htm>

